07-28-00

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PTO/SB/05 (4/98)
Approved for use through 09/30/2000. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No.	678-517 (P8784)
First Inventor or Application Identifier	Seok-Hyo Park
Title	Method for Adjusting the Volume of...
Express Mail Label No.	EL484185188US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. [X] * Fee Transmittal Form *(e.g., PTO/SB/17)*
(Submit an original and a duplicate for fee processing)

2. [X] Specification [Total Pages 11]
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. [X] Drawing(s) *(35 U.S.C. 113)* [Total Sheets 3]

4. Oath or Declaration [Total Pages 2]
a. [X] Newly executed (original or copy)
b. [ ] Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
i. [ ] DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

5. [ ] Microfiche Computer Program *(Appendix)*

6. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. [ ] Computer Readable Copy
b. [ ] Paper Copy (identical to computer copy)
c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. [X] Assignment Papers (cover sheet & document(s))
8. [ ] 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney
9. [ ] English Translation Document *(if applicable)*
10. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
11. [ ] Preliminary Amendment
12. [X] Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. [ ] * Small Entity Statement(s) *(PTO/SB/09-12)* [ ] Statement filed in prior application, Status still proper and desired
14. [X] Certified Copy of Priority Document(s)
(if foreign priority is claimed)
15. [ ] Other: .....

16. **If a CONTINUING APPLICATION,** *check appropriate box, and supply the requisite information below and in a preliminary amendment:*
[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No: _____/_____
Prior application information: Examiner _____ *Group / Art Unit:* _____
For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by **reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.**

17. CORRESPONDENCE ADDRESS

[ ] *Customer Number or Bar Code Label* *(Insert Customer No. or Attach bar code label here)* or [X] *Correspondence address below*

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Name (Print/Type)	Paul J. Farrell	Registration No. (Attorney/Agent)	33,494
Signature	Paul J. Farrell	Date	July 27, 2000

CERTIFICATION UNDER 37 C.F.R. § 1.10 I hereby certify that this correspondence and the documents referred to as enclosed are being deposited with the United States Postal Service on date below in an envelope as "Express Mail Post Office to Addressee" Mail Label Number EL484185188US addressed to: Assistant Commissioner for Patents, Box Patent Application, Washington, D.C. 20231.

Dated: July 27, 2000

Kevin C. Ecker

PATENT
Atty. Docket No. 678-517 (P8784)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Assistant Commissioner
for Patents
Washington, D.C. 20231

UTILITY APPLICATION FEE TRANSMITTAL

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): Seok-Hyo Park

For: METHOD FOR ADJUSTING THE VOLUME OF COMMUNICATION VOICE AND KEY TONE IN A CELLULAR PHONE

Enclosed are:

[X] 7 page(s) of specification

[X] 1 page(s) of Abstract

[X] 3 page(s) of claims

[X] 3 sheets of drawings [X] formal [] informal

[X] 2 page(s) of Declaration and Power of Attorney

[X] An Assignment of the invention to Samsung Electronics Co., Ltd.

CERTIFICATION UNDER 37 C.F.R. § 1.10

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date July 27, 2000 in an envelope as "Express Mail Post Office to Addressee" Mail Label Number EL484185188US addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Kevin C. Ecker
(Type or print name of person mailing paper)

(Signature of person mailing paper)

[] This application claims the benefit under 35 U.S.C. §119(e) of U.S. Provisional Application(s) No(s).:

APPLICATION NO(S).:	FILING DATE
__/_____	_____
__/_____	_____

[X] Certified copy of applications

Country	Appln. No.	Filed
Korea	99-30680	July 27, 1999

from which priority under Title 35 United States Code, § 119 is claimed

[X] is enclosed.

[] will follow.

CALCULATION OF UTILITY APPLICATION FEE

For	Number Filed	Number Extra	Rate	Basic Fee $690.00
TOTAL CLAIMS	7	0	x 18 =	$0
INDEPENDENT CLAIMS	5	2	x 78 =	$156.00
[] Multiple Dep. Claim	0		260	$0
				TOTAL$846.00

[] Verified Statement of "Small Entity" Status Under 37 C.F.R. § 1.27. Reduced fees under 37 C.F.R. § 1.9(f) (50% of total) paid herewith $.

*Includes all independent and single dependent claims and all claims referred to in multiple claims. See 37 C.F.R. § 1.75(c).

[X] The amount of $40.00 for recording the attached Assignment is enclosed as a separate check.

[X] Check in the amount of $846.00 and $40.00 to cover the [X] recording, [X] filing fee(s) are attached.

[ ] Charge fee to Deposit Account No. 04-1121. Order No. _____
TWO (2) COPIES OF THIS SHEET ARE ENCLOSED.

[X] Please charge any deficiency as well as any other fee(s) which may become due under 37 C.F.R. § 1.16 and 1.17, at any time during the pendency of this application, or credit any overpayment of such fee(s) to Deposit Account No. 04-1121. Also, in the event any extensions of time for responding are required for the pending application(s), please treat this paper as a petition to extend the time as required and charge Deposit Account No. 04-1121 therefor. TWO (2) COPIES OF THIS SHEET ARE ENCLOSED.

Date: July 27, 2000

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METHOD FOR ADJUSTING THE VOLUME OF COMMUNICATION VOICE AND KEY TONE IN A CELLULAR PHONE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a cellular phone, and more particularly to a method for adjusting the volume of communication voice and key tones in a cellular phone.

2. Description of the related art

In general, a cellular phone is provided with a device for adjusting the volume of communication voice and key tones in which the user adjusts the volume of the speaker by manually actuating two volume-adjustment buttons. Typically, the volume adjustment buttons are installed on one side of the cellular phone. However, such conventional volume-adjustment buttons are inconvenient for the user to operate when one hand is holding the phone during communication. In addition, these volume-adjustment buttons serve as a limitation in designing a compact cellular phone.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method for adjusting the volume of communication voice and key tones in a cellular phone which eliminates the two conventional volume-adjustment buttons from the cellular phone, and is convenient for the user to adjust the

volume.

It is another object of the present invention to provide a method for adjusting the volume level of communication voice and key tones by means of voice commands registered in a cellular phone.

According to an embodiment of the present invention, there is provided a method for adjusting the volume level of communication voice and key tone in a cellular phone that comprises the steps of registering a first voice command for commanding the cellular phone to raise the volume level, and registering a second voice command to lower it; determining whether the cellular phone is in an "on" state or an "off" state to receive communication when the first or second voice command is inputted to the cellular phone; raising or lowering the volume level respectively in response to the first or second voice command if the cellular phone is in an "on" state to receive communication; determining whether the cellular phone is in a key tone adjustment mode if the cellular phone is not in an "on" state to receive communication when the first or second voice command is inputted to the cellular phone; and raising or lowering the volume level of the key tones respectively in response to the first or second voice command if the cellular phone is in the key tone adjustment mode.

The present invention will now be described more specifically with reference to the drawings attached only by way of example.

BRIEF DESCRIPTION OF THE FIGURES

The above and other objects features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings in which:

Fig. 1 is a block diagram illustrating the structure of a cellular phone embodying the present invention;

Fig. 2 is a flow chart illustrating the process of registering a first and a second voice command respectively used for commanding the cellular phone to raise and lower the volume level of voice communication and key tones according to the present invention; and

Fig. 3 is a flow chart illustrating the process of adjusting the volume level of voice communication and key tone in a cellular phone according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Preferred embodiments of the present invention will be described hereinbelow with reference to the accompanying drawings. In the following description, well-known functions or constructions are not described in detail since they would obscure the invention in unnecessary detail.

Referring to Fig. 1, when receiving an RF signal, an RF (Radio Frequency) module 102 demodulates an RF signal received from a base station through an antenna 100, and transfers the RF signal to a base band processor 104. The base band processor 104 down converts the output signal of the RF module 102 into a digital signal and applies the digital signal to a control unit 106. When transmitting the RF signal, RF module 102 modulates a signal from the base band processor 104, and transmits the RF signal through antenna 100 to a base station. The base band processor 104 up converts the signal from the control unit 106 into an analog signal and transfers an analog signal to the RF module 102. The control unit 106 is a central processing unit such as a mobile system microprocessor (MSM) found in mobile telephones, and controls the entire operation of the cellular phone.

A memory device 110 includes a flash memory 150 for storing the control program of the control unit 106, an Electrically Erasable and Programmable Read-Only Memory (EEPROM) 160 for storing various setting data such as power level, etc. The memory device 110 further includes a static RAM 155 for storing various flag data and call treatment information and a Read-Only Memory (ROM) 157. ROM 157 typically has a memory size of either 16 or 32 megabytes, while RAM 155 typically has a memory size of less than or equal to 4 megabytes. The memory device 110 also allocates the memory regions for storing the voice commands to adjust the volume level of the cellular. A keypad 112 includes a plurality of keys for entering various commands and information. A display unit 108 usually consists of an LCD module to display the information under the control of control unit 106. A sound signal processor 114 processes audio data received from base band processor 104, converts the audio data into audio signals and delivers the audio signals to a speaker 118. The sound signal processor 114 also

processes audio signals received through a microphone 116, and converts the signals into audio data and delivers the signals to the base band processor 104 or control unit 106. The control unit 106 stores the audio data corresponding to the user's voice inputted through the microphone 116 into memory device 110 when in a mode of registering the voice commands to adjust the volume.

Referring to FIG. 2, the process of registering the voice commands used for adjusting the volume level of voice communication and key tone in the cellular phone is described. The control unit 106 determines at decision step 200 whether the user enters the voice command registration mode by operating the keypad 112. If the cellular phone is in the voice command registration mode, the control unit 106 proceeds to step 204 to notify the user to enter a first voice command to be used for raising the volume level of the cellular phone through the display unit 108 or speaker 118. In this case, the notification may be made through display unit 108 and/or speaker 118. If the cell phone is not in voice command registration mode, the process proceeds to step 202 to perform pertinent functions. The pertinent functions refer to manually adjusting the volume of communication voice and key tone of the cellular phone by using the key pad. At step 206, the control unit 106 determines whether the user enters the first voice command through the microphone 116. If so, the control unit 106 registers the first voice command in the memory device 110 in step 208. Thereafter, the control unit 106 proceeds to step 210 to notify the user to enter a second voice command to be used for lowering the volume level of the cellular phone through the display unit 108 and/or speaker 118. Then, the control unit 106 determines, at decision 212, whether the user entered the second voice command through the microphone 116. If so, the control unit 106 registers the second voice command in the memory

device 110 in step 214. If not, the control unit 106 continues to determine whether a voice command in inputted once the command is displayed on the LCD.

Additionally, the above process may include further steps of confirming the entered voice commands. For example, after entering the first voice command, the control unit requests the user to re-enter it in order to confirm that the first entered voice command should be registered. Namely, the voice command is registered or not depending on whether first entered voice command agrees with the second entered (re-entered) voice command.

Referring to FIG. 3, the process of adjusting the volume level of voice communication and key tone by using the first and second voice commands is described. The control unit 106 determines at decision 300 whether the first voice command for raising the volume level is entered. The control unit 106 determines at decision 302 whether the cellular phone is in an "on" state for voice communication. If so, control unit 106 proceeds to step 304 to raise the volume level by one degree. If not, the control unit 106 determines at step 306 whether the user has entered the key tone level adjustment mode by operating the keypad 112. If the user did enter the key tone level adjustment mode, the control unit 106 proceeds to step 308 to raise the volume level of the key tone by one degree. A degree of adjustment refers to either increasing or decreasing the volume level by 3 decibels.

Alternatively, if the first voice command is not entered in step 300, the control unit 106 determines at decision 310 whether the second voice command for lowering the volume level is entered. If so, control unit 106 determines at decision 314 whether the cellular phone is in the

"on" state for voice communication. If not, control unit 106 proceeds to step 312 to perform pertinent functions. The pertinent functions refer to manually adjusting the volume of communication voice and key tone of the cellular phone by using the key pad. If it is determined in step 314 that the system is in an "on" state for receiving voice communication, the control unit 106 proceeds to step 316 to lower the volume level by one degree. If not in an "on" state, the control unit 106 determines at step 318 whether the user has entered the key tone level adjustment mode by operating the keypad 112. If the key tone level adjustment mode is entered, the control unit proceeds to step 320 to lower the volume level of the key tone by one degree.

Thus, the invention provides the cellular phone with means to adjust the volume level using voice commands so that the conventional volume level adjustment buttons are not required. While the present invention has been described in connection with specific embodiments accompanied by the attached drawings, it will be readily apparent to those skilled in the art that various changes and modifications may be made thereto without departing from the spirit and scope of the present invention.

WHAT IS CLAIMED IS:

1. A method for adjusting the volume level of communication voice in a cellular phone, comprising the steps of:

registering a first voice command for commanding the cellular phone to raise the volume level;

registering a second voice command for commanding the cellular phone to lower the volume level; and

raising or lowering the volume level, respectively, in response to said first or said second voice command inputted to said cellular phone.

2. A method for adjusting the volume level of key tone in a cellular phone, comprising the steps of:

registering a first voice command for commanding the cellular phone to raise the key tone volume level;

registering a second voice command for commanding the cellular phone to lower the key tone volume level; and

raising or lowering the key tone volume level respectively in response to said first or said second voice command inputted to said cellular phone.

3. A method for adjusting the volume level of communication voice in a cellular phone, comprising the steps of:

registering a first voice command for commanding the cellular phone to raise the

volume level;

registering a second voice command for commanding the cellular phone to lower the volume level;

determining whether the cellular phone is in an "on" state for receiving communication when said first or said second voice command is inputted to the cellular phone; and

raising or lowering the volume level of the cellular phone, respectively, in response to said first or said second voice command if said cellular phone is in said "on" state.

4. A method for adjusting the volume level of communication voice and key tones in a cellular phone, comprising the steps of:

registering a first voice command for commanding said cellular phone to raise the volume level;

registering a second voice command for commanding the cellular phone to lower the volume level;

determining whether the cellular phone is in an "on" state for receiving communication when said first or said second voice command is inputted to said cellular phone;

raising or lowering the volume level respectively in response to said first or said second voice command if said cellular phone is in said "on" state;

determining whether said cellular phone is in a key tone adjustment mode if said cellular phone is not in said "on" communication state when said first or said second voice command is inputted to said cellular phone; and

raising or lowering the volume level of the key tones, respectively, in response to said first or said second voice command if said cellular phone is in said key tone adjustment mode.

5. A method according to claim 1, wherein the step of registering said first voice command further comprises the steps of:

inputting said first voice command through a microphone; and

storing said first voice command in a memory device.

6. The method according to claim 5, wherein the step of registering said second voice command further comprises the steps of:

inputting said second voice command through a microphone; and

storing said first second command in said memory device.

7. A method for adjusting the volume level of communication voice in a cellular phone, comprising the steps of:

determining whether a first voice command for commanding the cellular phone to raise the volume level is entered;

determining whether a second voice command for commanding the cellular phone to lower the volume level is entered; and

raising or lowering the volume level, respectively, in response to whether said first or said second voice command is entered into said cellular phone.

ABSTRACT

A method for adjusting the volume level of communication voice and key tones in a cellular phone, comprising the steps of inputting a first and a second voice command for commanding the cellular phone to raise the volume level or lower it, determining whether the cellular phone is in an "on" communication state when the first or second voice command is inputted to the cellular phone, raising or lowering the volume level respectively in response to the first or second voice command if the cellular phone is in an "on" communication state determining whether the cellular phone is in a key tone adjustment mode if the cellular phone is not in an "on" communication state when the first or second voice command is inputted to the cellular phone, and raising or lowering the volume level of the key tone respectively in response to the first or second voice command if the cellular phone is in the key tone adjustment mode.

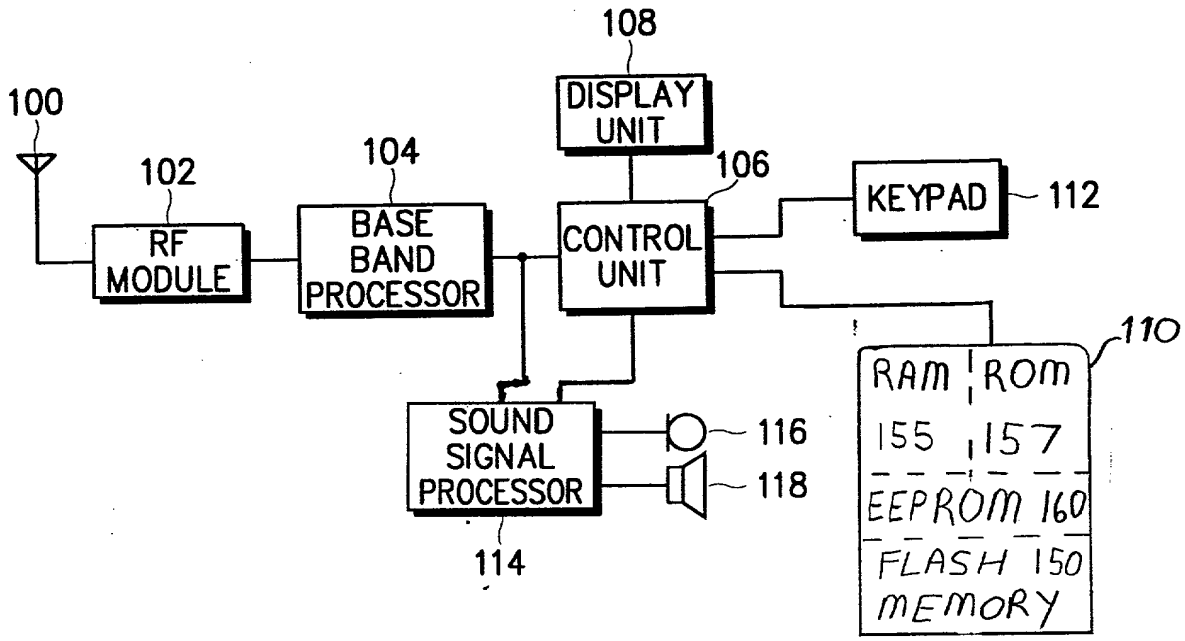

100
102
RF MODULE
104
BASE BAND PROCESSOR
108
DISPLAY UNIT
106
CONTROL UNIT
KEYPAD
112
110
RAM
ROM
155
157
EEPROM 160
FLASH 150
MEMORY
SOUND SIGNAL PROCESSOR
114
116
118

FIG. 1

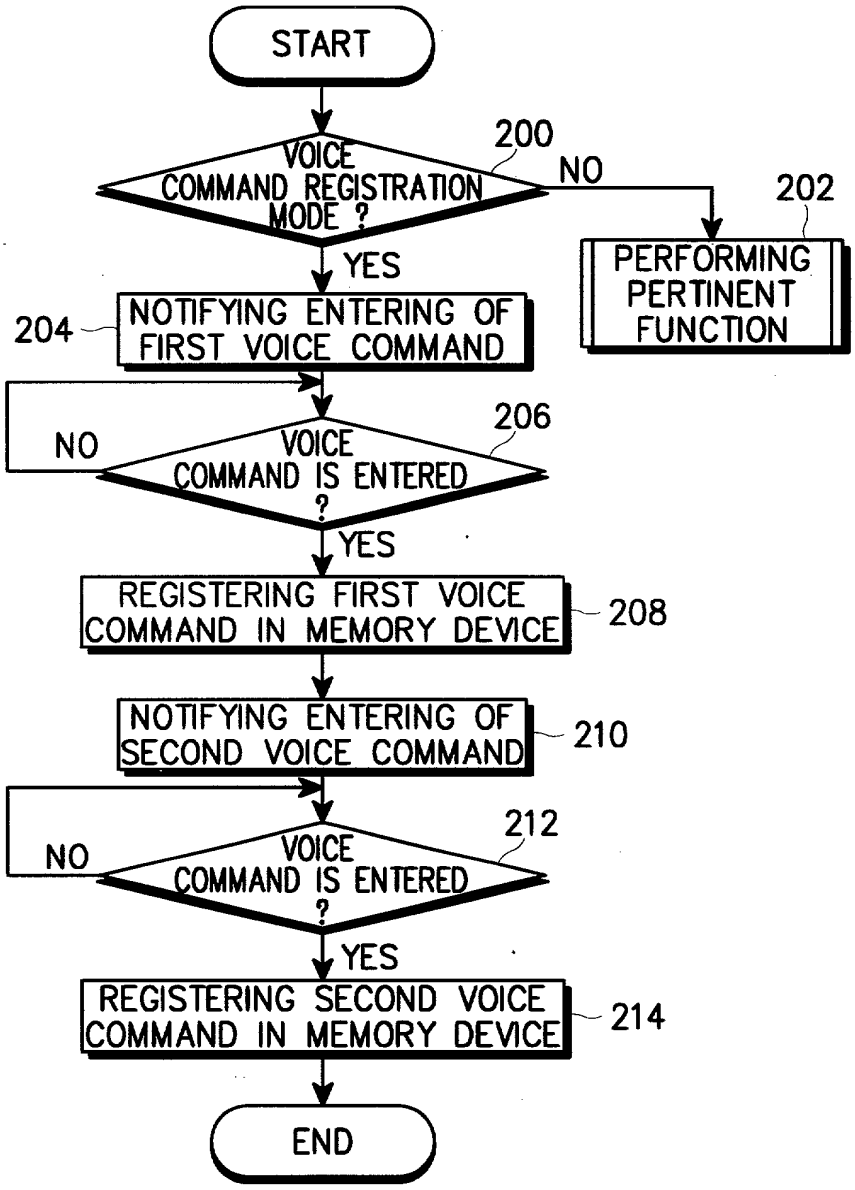
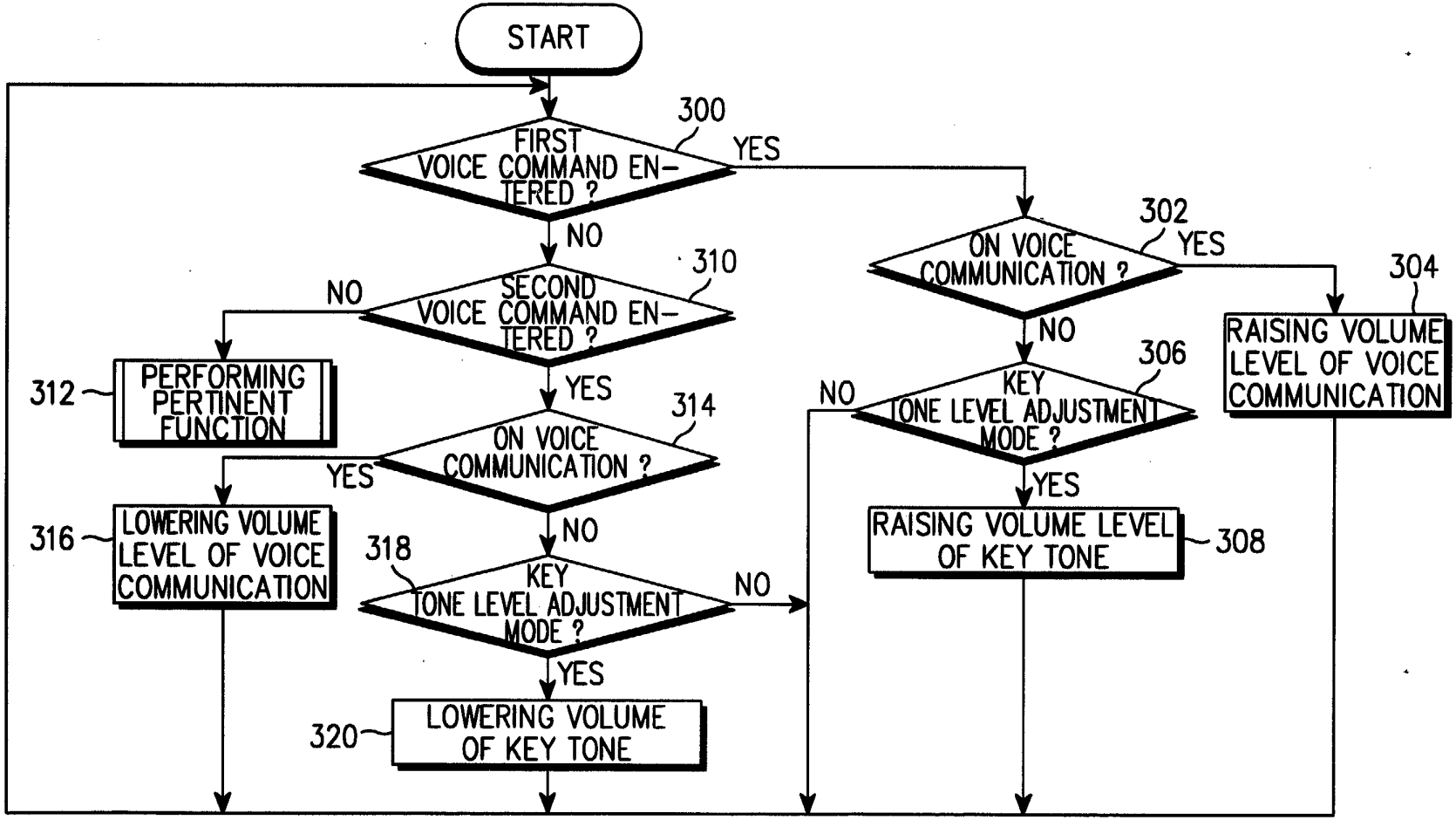

START
VOICE COMMAND REGISTRATION MODE ?
200
NO
202
PERFORMING PERTINENT FUNCTION
YES
204
NOTIFYING ENTERING OF FIRST VOICE COMMAND
NO
VOICE COMMAND IS ENTERED ?
206
YES
REGISTERING FIRST VOICE COMMAND IN MEMORY DEVICE
208
NOTIFYING ENTERING OF SECOND VOICE COMMAND
210
NO
VOICE COMMAND IS ENTERED ?
212
YES
REGISTERING SECOND VOICE COMMAND IN MEMORY DEVICE
214
END

FIG. 2

FIG. 3


START
300
FIRST VOICE COMMAND ENTERED ?
YES
NO
310
SECOND VOICE COMMAND ENTERED ?
NO
YES
312
PERFORMING PERTINENT FUNCTION
314
ON VOICE COMMUNICATION ?
YES
NO
316
LOWERING VOLUME LEVEL OF VOICE COMMUNICATION
318
KEY TONE LEVEL ADJUSTMENT MODE ?
NO
YES
320
LOWERING VOLUME OF KEY TONE
302
ON VOICE COMMUNICATION ?
YES
NO
304
RAISING VOLUME LEVEL OF VOICE COMMUNICATION
306
KEY TONE LEVEL ADJUSTMENT MODE ?
NO
YES
308
RAISING VOLUME LEVEL OF KEY TONE

PTO/SB/01 (6/95)

DECLARATION

Docket No. 678-517 (P8784)

AS A BELOW NAMED INVENTOR, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe that I am the original, first and sole *(if only one name is listed below)*, or an original, first and joint inventor *(if plural names are listed below)*, of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE: METHOD FOR ADJUSTING THE VOLUME OF COMMUNICATION VOICE AND KEY TONE IN A CELLULAR PHONE

the specification of which either is attached hereto or indicates an attorney docket no. 678-517 (P8784), **or:**

[ ] was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____,

[ ] and *(if applicable)* was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations §1.56. I hereby claim foreign priority benefits under Title 35, U.S. Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States, or §119(e) of any United States provisional application(s), listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

			Priority Claimed:
1999-30680	Republic of Korea	27/07/1999	Yes [X] No [ ]
(Application Number)	*(Country)*	*(Day/Month/Year filed)*	
			Yes [ ] No [ ]
(Application Number)	*(Country)*	*(Day/Month/Year filed)*	

I hereby claim the benefit under Title 35, U.S. Code, §120, of any United States application(s), or §365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, The Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial Number)	*(Filing Date)*	*(STATUS: patented, pending, abandoned)*
(Application Serial Number)	*(Filing Date)*	*(STATUS: patented, pending, abandoned)*

I hereby appoint the following attorneys: PETER G. DILWORTH, Reg. No. 28,450; ROCCO S. BARRESE, Reg. No. 25,263; DAVID M. CARTER, Reg. No. 30,949; PAUL J. FARRELL, Reg. No. 33,494; PETER DELUCA, Reg. No. 32,978; JEFFREY S. STEEN, Reg. No. 32,063; ADRIAN T. CALDERONE, Reg. No. 31,745; GEORGE M. KAPLAN, Reg. No. 28,375; JOSEPH W. SCHMIDT, Reg. No. 36,920; RAYMOND E. FARRELL, Reg. No. 34,816; RUSSELL R. KASSNER, Reg. No. 36,183; CHRISTOPHER G. TRAINOR, Reg. No. 39,517; GEORGE LIKOUREZOS, Reg. No. 40,067; JAMES M. LOEFFLER, Reg. No. 37,873; EDWARD C. MEAGHER, Reg. No. 41,189; SUSAN L. HEGG, Reg. No. 37,360; MICHAEL P. DILWORTH, Reg. No. 37,311; PETER B. SORELL, Reg. No. 44,349; and GLENN D. SMITH, Reg. No. 42,166, each of them of DILWORTH & BARRESE, 333 Earle Ovington Boulevard, Uniondale, New York 11553 to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

Paul J. Farrell, Esq.
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Tel. No.: (516) 228-8484

I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST OR SOLE INVENTOR: Seok-Hyo PARK Citizenship Republic of Korea

Inventor's signature: Seok-Hyo PARK. Date: 7 July 2000
Residence & Post Office Address: 543, Okgye-dong, Kumi-shi, Kyongsangbuk-do, Republic of Korea

FULL NAME OF SECOND JOINT INVENTOR: _____ Citizenship _____

Inventor's signature: _____ Date: _____
Residence & Post Office Address:

FULL NAME OF THIRD JOINT INVENTOR: _____ Citizenship _____

Inventor's signature: _____ Date: _____
Residence & Post Office Address:

FULL NAME OF FOURTH JOINT INVENTOR: _____ Citizenship _____

Inventor's signature: _____ Date: _____
Residence & Post Office Address:

FULL NAME OF FIFTH JOINT INVENTOR: _____ Citizenship _____

Inventor's signature: _____ Date: _____
Residence & Post Office Address:

FULL NAME OF SIXTH JOINT INVENTOR: _____ Citizenship _____

Inventor's signature: _____ Date: _____
Residence & Post Office Address:

United States Patent & Trademark Office

Office of Initial Patent Examination -- Scanning Division

SCAN 11

Application deficiencies were found during scanning:

☐ Page(s)_____ of _____ were not present for scanning. (Document title)

☐ Page(s)_____ of _____ were not present for scanning. (Document title)

☒ Scanned copy is best available. of Declarations